

REMARKS

The allowance of claims 25-27 is noted, with thanks. Claim 13 has been amended to better define the claimed invention, and claims 15, 20 and 22 have been amended to address the 112 rejections. The objection to claim 23 under 37 CFR 1.75 have been overcome by the amendment of claim 13, on which claim 23 depends.

Turning to the art rejections, and considering first the rejection of claims 13, 15, 16, 19, 20, 23, and 24, as under 35 U.S.C. § 103(a) as unpatentable over Hanson (U.S. Patent No. 4,366,386) in view of Scarpa (U.S. Patent No. 6,375,424) and Terracina (WO 02/42640 A1), independent claim 13 has been amended to require, in part, "wherein each said rotary cylindrical column has a rib wound around said rotary cylindrical column in a continuous spiral shape extending from an outer peripheral surface of said rotary cylindrical column." The Examiner admits that Hanson does not teach this feature and cites Scarpa for the teaching of a system with a plurality of motors corresponding to the plurality of blades. The Examiner's contention that the plural microfins of Terracina (see Figs. 4 and 5) equate to the ribs of claim 13 is also rendered moot by the foregoing amendments. Thus, no combination of Terracina with Hanson and Scarpa can render obvious claim 13 or claims 15-20, 23, and 24 that depend thereon.

Turning to the rejection of claims 21 and 22 as obvious from Hanson in view of Scarpa and Terracina, and further in view of Shimizu (JP 06-316925), these claims are directly or indirectly dependent on claim 13. The deficiencies of the combination of the Hanson, Scarpa, and Terracina references vis-à-vis claim 13 are discussed above. The Examiner cites Shimizu as teaching Magnus type machine having rotary columns furnished with dimples. Even assuming arguendo Shimizu is as the Examiner states, as noted in the previous amendment

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

Shimizu does not supply the missing teachings to the other combined art to achieve or render obvious claim 13 or claims 21 and 22 which depend thereon. Thus, no combination of Hanson, Scarpa and Terracina with Shimizu reasonably could be said to achieve or render obvious claim 13 or claims 21 and 22 which depend thereon.

Turning to the rejection of claim 24 as obvious from Hanson in view of Scarpa and Terracina, and further in view of Shibata (EP 1327773), claim 24 depends on claim 13. The deficiencies of the combination of the Hanson, Scarpa, and Terracina references vis-à-vis claim 13 are discussed above. Even assuming arguendo Shibata is as the Examiner states, Shibata simply does not supply the missing teachings to Hanson, Scarpa, and Terracina to achieve or render obvious claim 13 or claim 24 which depends thereon. Thus, no combination of Hanson, Scarpa and Terracina with Shibata reasonably could be said to achieve or render obvious claim 13 or claim 24 which depends thereon.

New dependent claim 28 has been added to further scope the invention and is allowable for the same reasons above adduced relative to claim 13, as well as for its own additional limitations.

Quite apart from the foregoing, it is noted that there are significant performance differences between the rotary cylindrical spiral shaped blade structures of the instant claimed invention and the blade structures taught by Terracina. In this regard, Applicants provide a Declaration under 35 CFR 1.132 which shows significant performance advantages enjoyed by the instant claimed invention as compared to Terracina.

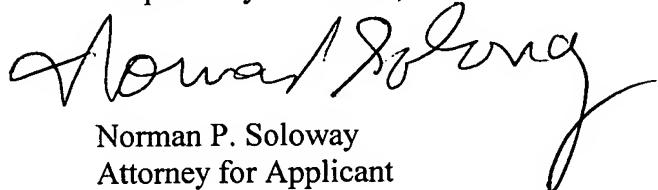
Having dealt with all the objections raised by the Examiner, the Application is believed to be in order for allowance. Early and favorable action is respectfully requested.

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

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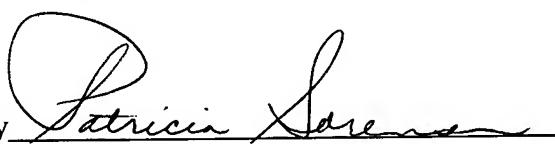
Respectfully submitted,



Norman P. Soloway
Attorney for Applicant
Reg. No. 24,315

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By 

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HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

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MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567